

IN THE CLAIMS:

1 1. (CURRENTLY AMENDED) A method for striping packets across pipelines of a
2 processing engine within a network switch, the processing engine having a plurality of
3 processors arrayed as pipeline rows and columns embedded between input and output
4 buffers, ~~each pipeline row including a context memory~~, the method comprising the steps
5 of:

6 including a context memory in each pipeline row;
7 organizing the context memory as a plurality of window buffers of a defined size;
8 apportioning each packet into contexts corresponding to the defined size associ-
9 ated with each window buffer; and
10 correlating each context with a relative position within the packet to thereby fa-
11 cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues
12 involving the contexts of the packet.

1 2. (ORIGINAL) The method of Claim 1 further comprising the step of organizing the
2 processors and context memory of each pipeline row as a cluster.

1 3. (ORIGINAL) The method of Claim 2 wherein the step of apportioning comprises the
2 steps of:
3 segmenting the packet into fixed sized contexts at the input buffer;
4 sequentially passing the contexts to the clusters; and
5 storing the fixed sized contexts in appropriate window buffers of the context
6 memories.

1 4. (ORIGINAL) The method of Claim 3 wherein the step of correlating comprises the
2 step of providing a program counter entry point function to indicate the relative position
3 of each context within the packet.

1 5. (ORIGINAL) The method of Claim 3 wherein the relative position comprises one of a
2 beginning, middle and end context of the packet.

1 6. (ORIGINAL) The method of Claim 3 further comprising the steps of:
2 processing the context at a source processor of the cluster;
3 communicating an intermediate result relating to processing of the context to a
4 destination processor of a neighboring cluster.

1 7. (ORIGINAL) The method of Claim 6 wherein the step of communicating comprises
2 the step of providing an intercolumn communication mechanism configured to forward
3 the intermediate result from the source processor to an address of the destination proces-
4 sor.

1 8. (ORIGINAL) The method of Claim 3 further comprising the step of changing the size
2 of a fixed sized context at the context memory of a cluster.

1 9. (ORIGINAL) The method of Claim 8 wherein the step of changing comprises the
2 steps of:
3 deleting a portion of the fixed sized context stored in the window buffer; and
4 substituting the deleted portion of the context with information stored at another
5 location of the context memory.

1 10. (ORIGINAL) The method of Claim 9 wherein the substituted information is one of
2 larger than and smaller than the deleted portion of the fixed sized context.

1 11. (ORIGINAL) A system for striping packets across pipelines of a processing engine
2 within a network switch, the processing engine having a plurality of processors arrayed as
3 pipeline rows and columns embedded between input and output buffers, the system com-
4 prising:

5 a context memory within each pipeline row, the context memory organized as a
6 plurality of window buffers of a defined size;

7 a segmentation unit adapted to apportion each packet into contexts for processing
8 by the processors, each context corresponding to the defined size associated with each
9 window buffer; and

10 a mapping mechanism configured to correlate each context with a relative posi-
11 tion within the packet to thereby facilitate reassembly of the packet at the output buffer,
12 while obviating out-of-order issues involving the contexts of the packet.

1 12. (ORIGINAL) The system of Claim 11 wherein the processors and context memory
2 of each pipeline row are organized as a cluster.

1 13. (ORIGINAL) The system of Claim 12 wherein the mapping mechanism comprises a
2 program counter entry point function that indicates the relative position of each context
3 within the packet.

1 14. (ORIGINAL) The system of Claim 13 wherein the relative position comprises one of
2 a first, last and intermediate portion of the packet.

1 15. (ORIGINAL) The system of Claim 13 further comprising an intercolumn communi-
2 cation mechanism configured to forward an intermediate result relating to processing of a
3 context by a source processor to a destination processor.

1 16. (ORIGINAL) A computer readable medium containing executable program instruc-
2 tions for striping packets across pipelines of a processing engine within a network switch,
3 the processing engine having a plurality of processors arrayed as pipeline rows and col-
4 umns embedded between input and output buffers, each pipeline row including a context
5 memory, the processors and context memory of each pipeline row organized as a cluster,
6 the executable program instructions comprising program instructions for:

7 organizing the context memory as a plurality of window buffers of a defined size;
8 apportioning each packet into contexts corresponding to the defined size associ-
9 ated with each window buffer; and

10 correlating each context with a relative position within the packet to thereby fa-
11 cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues
12 involving the contexts of the packet.

1 17. (ORIGINAL) The computer readable medium of Claim 16 further comprising pro-
2 gram instructions for:

3 segmenting the packet into fixed sized contexts at the input buffer;
4 sequentially passing the contexts to the clusters; and
5 storing the fixed sized contexts in appropriate window buffers of the context
6 memories.

1 18. (ORIGINAL) The computer readable medium of Claim 17 wherein the program in-
2 struction for correlating comprises the program instruction for providing a program
3 counter entry point function to indicate the relative position of each context within the
4 packet.

1 19. (ORIGINAL) The computer readable medium of Claim 17 further comprising pro-
2 gram instructions for changing the size of a fixed sized context at the context memory of
3 a cluster.

1 20. (ORIGINAL) The computer readable medium of Claim 19 wherein the program in-
2 struction for changing comprises program instructions for:
3 deleting a portion of the fixed sized context stored in the window buffer; and
4 substituting the deleted portion of the context with information stored at another
5 location of the context memory.

1 21. (NEW) Electromagnetic signals propagating on a computer network carrying in-
2 structions for striping packets across pipelines of a processing engine within a network
3 switch, the processing engine having a plurality of processors arrayed as pipeline rows
4 and columns embedded between input and output buffers, each pipeline row including a
5 context memory, the processors and context memory of each pipeline row organized as a
6 cluster, the electromagnetic signals comprising program instructions for:
7 organizing the context memory as a plurality of window buffers of a defined size;
8 apportioning each packet into contexts corresponding to the defined size associ-
9 ated with each window buffer; and
10 correlating each context with a relative position within the packet to thereby fa-
11 cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues
12 involving the contexts of the packet.
